REMARKS

Applicant respectfully requests reconsideration of this application. Claims 1-35 are currently pending.

Claims 1, 4, 9, 14, 17, 20, 21, 24, 29, and 33 have been amended. Claims 5, 6, 10, 15, 16, 22, 23, and 26-28 have been cancelled. No claims have been added.

Therefore, claims 1-4, 7-9, 11-14, 17-21, 24, 25, and 29-35 are now presented for examination.

Allowed Claims and Allowable Subject Matter

The Office Action is no clear regarding the allowance of claims in the present application. Claim 17-32 are indicated to be allowed in both the Office Action summary and the Allowable Subject Matter section of the Detailed Action. However, there are also rejections of certain of these claims. Claims 24-32 are rejected under 35 USC §101, and claims 17 and 19 are rejected under 35 USC §112, second paragraph.

Because claims may be found to be allowable only when there no further pending rejections of the claims, Applicant is unclear regarding which of the claims are allowed. Applicant respectfully requests clarification of the claim allowance.

Further, claim 4 was objected to as being dependent on a rejected base claim, together with claims 2, 13, 14, and 34, but indicated to be allowable if rewritten in independent form. However, claim 4 is also rejected under 35 U.S.C. §112. It is submitted that the rejection to claim 4 has been addressed, but clarification of the allowable subject matter is requested.

Subsequent Office Action Must be Non-final

It is submitted that the claims are in form for allowance. However, if a second Office Action is issued in this matter, the Office Action must be non-final. As shown above, the current Office Action is incomplete because it does not make clear which claims are or are not allowed, or contain allowable subject matter.

Because of this, at minimum a second non-final office action is required to provide a complete examination of the application – the current Office Action is not complete.

Claim Rejections under 35 U.S.C §101

The Examiner has rejected claims 1-16 and 24-32 under 35 USC §101 as being directed to non-statutory subject matter. Specifically, the Office Action alleges that independent claims 1, 9, 24, and 29 are directed to a signal, and thus do not fall into a statutory category of patentable subject matter.

The Applicant respectfully traverses the rejection. The basis of the rejections is incorrect because none of the claims in the present application are directed to a signal. The Applicant submits that the rejection must be removed.

The Federal Circuit Court of Appeals has recently addressed the question of signal claims. (*In re Nuijten*, 500 F.3d 1346 (Fed. Cir 2007) (rehearing denied February 11, 2008)) As indicated in the decision, the claims that were the subject of the appeal were not traditional step-by-step process claims or apparatus claims for generating, receiving, processing, or storing the signals – these claims had already been found to be allowable. (500 F.3d at 1351) For example, the following claim was NOT a part of the decision, having already been found to be allowable:

> A method of embedding supplemental data in a signal, comprising the steps of:
>
> encoding the signal in accordance with an encoding process which includes the step of feeding back the encoded signal to control the encoding; and modifying selected samples of the encoded signal to represent the supplemental data prior to the feedback of the encoded signal and including the modifying of at least one further sample of the encoded signal preceding the selected sample if the further sample modification is found to improve the quality of the encoding process.

In contrast, the claims that were at issue in the decision were in the following form as claims to signals:

> *A signal with embedded supplemental data*, the signal being encoded in accordance with a given encoding process and selected samples of the signal representing the supplemental data, and at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process.

(500 F.3d at 1351) (*emphasis added)* The claims that were considered and found to be nonstatutory subject matter were in fact directed to a signal, NOT to a method or apparatus. As shown in the decision, the Federal Circuit in *Nuijten* compared the claims for signals to the categories of patentable subject matter under 35 USC §101, and found that the claims did not fall within any of the categories. However, application of the ruling by the Court makes no sense with regard to the current claims. For example, the Appellant had attempted to argue that a signal was a "process", but this was rejected because the claim was not a series of acts or steps. In contrast, claim 1 is in the form of a traditional method claim, and thus *Nuijten* is not applicable. Similarly, claim 9 is a

method, claim 24 is a method, and claim 29 is an apparatus – none of these claims are claims to signals.

Similarly, the Office Action is contrary to the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility issued by the USPTO (which are now subject to the *Nuijten* decision). The Guidelines indicated that "Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101." The claims herein are not signal claims, are not limited to recitation of physical characteristics of a form of energy, and are not limited to a signal encoded with functional descriptive material. Thus, the discussion that was provided in the Guidelines is not relevant.

It is thus submitted that the rejection provided by the Office Action under 35 USC §101 is contrary to law, and is in particular inconsistent with the decision of the Federal Circuit in *In re Nuijten*. It is submitted that claims 1-16 and 24-32 should now be allowed.

Claim Rejections under 35 U.S.C §112, second paragraph

The Examiner has rejected claims 1, 3, 4, 6, 7, 16, 17, 19, 33, and 35 under 35 USC §112, second paragraph as failing to particularly point out and distinctly claim the subject matter of the invention. as being directed to non-statutory subject matter.

The Examiner has correctly identified certain inconsistencies in language that have been corrected. The Applicant submits the following:

Claim 1 – Claim 1 has been corrected to refer to "a first time slot", rather than "a first phase slot", in line 8.

Claim 17 – Claim 17 has been corrected to refer to "the second phase slot" and "the third phase slot" in lines 9 and 11 respectively, rather than "the second time slot" and the "third time slot".

Claims 3 and 19 – Claims 3 and 19 are rejected because of the phrase "remaining at the second amplitude level for a plurality of time slots". The Applicant respectfully traverses the rejection, and submits that the claims are correct as written.

Claim 1 does provide for first, second, and third time slots. The rejection would appear to be based on the assumption that the third time slot immediately follows the second time slot, but this is incorrect. By custom, elements in patent claims are designated as the "first", "second", etc., elements. However, this is simply a designation that is used for clarity, and does not in itself indicate the relative position of elements, or indicate the existence or nonexistence of other elements. These elements could just as well be designated as element A, element B, and element C, or any other designation that may be chosen. In claim 1, the designation of first, second, and third time slots thus are only for reference – these does not indicate how many time slots may exist between these designated time slots. In particular, the fact that there is produced a modulated signal that remains at a second amplitude in a second time slot and transitions from the second amplitude level to the third amplitude level in the third time slot in independent claim 1 (or such phase slots in independent claim 17) does not mean that there are not additional

time slots between the second time slot and the third time slot. Thus, the modulated signal may remain at the second amplitude level for a plurality of time or phase slots as provided in claims 3 and 19 respectively.

Claim 4 – Claim 4 has been corrected to refer to "a fourth time slot", rather than "a fourth phase slot", in line 4.

Claims 6, 16, and 35 – Without any concession regarding the rejection, claims 6 and 16 are cancelled to allow examination to go forward. Claim 35 is unrelated to claims 6 and 16, and this appears to be a typographical error. However, claim 35 is related to claims 3 and 19 – if the Office Action was intended to relate to the same rejection as these claims, the response to the rejection of claim 35 is as provided above for claims 3 and 19.

Claim 33 – Claim 33 has been amended to refer to "a first time slot", rather than "a first phase slot", in line 6, and to refer to "remaining at the second amplitude level", "remaining at the first amplitude level", in line 7.

Claim Rejection under 35 U.S.C. §103

Johnson in view of Dow

The Examiner rejected claims 1, 5, 7-11, 15, and 33 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0152154 of Johnson ("*Johnson*") in view of U.S. Patent Publication No. 2002/0083359 of Dow ("*Dow*") (now issued as U.S. Patent No. 6,910,146).

Claim 1, as amended herein, is as follows:

1. A method comprising:

producing a modulated signal, the modulated signal being modulated over a plurality of amplitude levels, including at least a first amplitude level, a second amplitude level and a third amplitude level, wherein the second amplitude is between the first amplitude level and third amplitude level, and over a plurality of time slots, including at least a first time slot, a second time slot that is after the first time slot, and a third time slot that is after the second time slot, the modulated signal:

transitioning from the first amplitude level to the second amplitude level in the first time slot,

remaining at the second amplitude level in the second time slot,

transitioning from the second amplitude level to the third amplitude level in the third time slot, and

returning to the first amplitude level; and

transferring the modulated signal.

With regard to such elements, the Office Action cites to *Johnson* and *Dow*. *Johnson* relates to high-speed data transmission, and particularly to a certain coding and decoding process. For example, Figure 2 of the *Johnson* reference provides an example of a multilevel signal that is communicated over a transmission line. As indicated in the description, the system is utilizing pulse amplitude modulation, with five signal levels being possible for each communicated signal.

The elements of claim 1 have been clarified to better explain the claim limitations, and it is submitted that the claim is patentable over the cited references. The Office Action refers to Figure 2 of the *Johnson* reference, which does not illustrate the elements of claim 1 with regard to the signal's transitions – no portion of the illustrated graph of

Figure 2 follows the transitions provided in claim 1. Further, it is submitted that the reference is not describing a particular signal, but rather a series of signals, each of which is to be interpreted according to its amplitude. "In FIG. 2, each time interval (e.g., t_2-t_1) represents communication of a single PAM5 symbol. Each PAM5 symbol includes one of the five signal levels." (*Johnson*, ¶0015, lines 10-13) Thus, the interpretation of the figure by the Office Action is contrary to the text of the reference. In Figure 2, the time slot is not part of the modulation of a symbol, and carries no information. In contrast, claim 1 of the current application provides that a signal is modulated over a plurality of amplitude levels and over a plurality of time slots. As provided in the application, "'modulation' means a process by which an information signal is used to modify a characteristic of another signal. Stated in an alternative manner, modulation is a process by which signal characteristics are transformed to represent information or data." (Specification, ¶0018) The reference does not provide for a "modulated signal being modulated over a plurality of amplitude levels ... and over a plurality of time slots" as provided in claim 1. The simple placement of a signal in a time slot is not modulation of the signal over a plurality of time slots – the time slot does not represent information or data.

Dow regards a method and apparatus for increasing timing margin. While this reference is cited for a different purpose, it is submitted that the reference does not address the elements of claim 1 shown to be missing from *Johnson*. The reference does not regard the modulation of a signal over a plurality of amplitude levels and a plurality of time slots. The *Dow* reference does regard phase position, but this is with regard to relative phases between integrated circuit dies (chips). This does not regard the various

time slots of a particular modulated signal, but rather is concerned with the relative phase between chips and a process for balancing the timing margin.

Thus, neither *Johnson* nor *Dow* teaches or reasonably suggests the elements of claim 1, and claim 1 is patentable over the combination of *Johnson* and *Dow*.

The arguments presented here with regard to claim 1 also apply to independent claims 9, 15, and 33, and such claims are also allowable. The remaining claims are dependent claims and are allowable as being dependent on the allowable base claims.

Johnson in view of Dow

The Examiner rejected claim 12 under 35 U.S.C. 103(a) as being unpatentable over *Johnson* in view of *Dow*, and further in view of U.S. Patent No.7,149,256 of Vrazel, et al. in view of U.S. Patent Publication No. 2002/0083359 of Dow ("*Vrazel*").

While having other differences with the cited references, claim 12 is allowable as being dependent on the allowable base claim.

Johnson and *Dow* have been addressed above. *Vrazel* is a reference that regards multilevel pulse position modulation. While the reference was cited for other reasons, it is submitted that the reference does not provide the elements of the claims found to be missing from *Johnson* and *Dow* above.

The *Vrazel* reference involves multilevel amplitude modulation in conjunction with pulse position modulation. For example, Figure 5 provides for combination data streams to generate a multilevel signal 506 and combination of signals to generate a pulse position modulated signal 512, with the resulting combination of these signals being a multilevel pulse position modulated signal 500. In addition to any other differences, it is submitted that none of the signals provides for the limitations of the independent claims.

For example, with regard to the pulse modulated signals, any transition will be from a starting or base amplitude to a particular amplitude value, followed by a transition back to the starting amplitude, which does not allow for a transition from a first level to a second level, then a transition from the second level to a third level. Further, the illustrated multilevel signals do not provide for modulating a signal over a plurality of time or phase slots.

For at least these reasons, claim 12 is patentable over the combination of *Johnson*, *Dow*, and *Vrazel*.

Conclusion

Applicant respectfully submits that the rejections have been overcome by the amendment and remark, and that the claims as amended are now in condition for allowance. Accordingly, Applicant respectfully requests the rejections be withdrawn and the claims as amended be allowed.

Invitation for a Telephone Interview

The Examiner is requested to call the undersigned at (503) 439-8778 if there remains any issue with allowance of the case.

Request for an Extension of Time if Needed

The Applicant respectfully petitions for an extension of time to respond to the outstanding Office Action pursuant to 37 C.F.R. § 1.136(a) should one be needed. Please charge any fee to our Deposit Account No. 02-2666.

Charge our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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